



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,383	10/19/2005	Taeyoung Park	NY-TECHVIL-220-US	3659
24972	7590	02/07/2008		
FULBRIGHT & JAWORSKI, LLP 666 FIFTH AVE NEW YORK, NY 10103-3198			EXAMINER KASTURE, DNYANESH G	
			ART UNIT 4147	PAPER NUMBER
			MAIL DATE 02/07/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,383	Applicant(s) PARK ET AL.	
	Examiner DNYANESH KASTURE	Art Unit 4147	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>19 Oct 05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it is too long. Correction is required. See MPEP § 608.01(b).
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Swash plate driven double head compressor with motor cooling.

Claim Objections

3. Claim 12 is objected to because of the following informalities: Line 11 reads: "having a plurality bores", it should read "having a plurality of bores". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 14 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. In Re Claim 14, the phrases "front cylinder block" and "rear cylinder block" lack antecedent basis in claim 12 or claim 13. Claim 12 only mentions a "cylinder block".

Art Unit: 3745

7. For the purpose of prior art rejection in a later section it is assumed that the intended phrases were "front of the cylinder block" and "rear of the cylinder block".

8. In Re Claim 17, the phrase "passages are formed in the drive shaft beyond a surface of the drive shaft coupling with the swash plate" implies that the inlet passages are formed exterior to the drive shaft, away from the surface ("beyond the surface"). The ordinary dictionary meaning of the word "passage" is a channel, which implies it should either be within a shaft or on the surface, but not away from the exterior surface. This makes the claim indefinite.

9. For the purpose of prior art rejection in a later section, the phrase is interpreted as follows: "passages are formed such that the inlet passage in the hub is coupled with the inlet passages in the drive shaft".

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 12 - 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al (US Patent 5183394 A) and in view of Yokomachi et al (US PG Pub 20010007635 A1).

Fig. 1

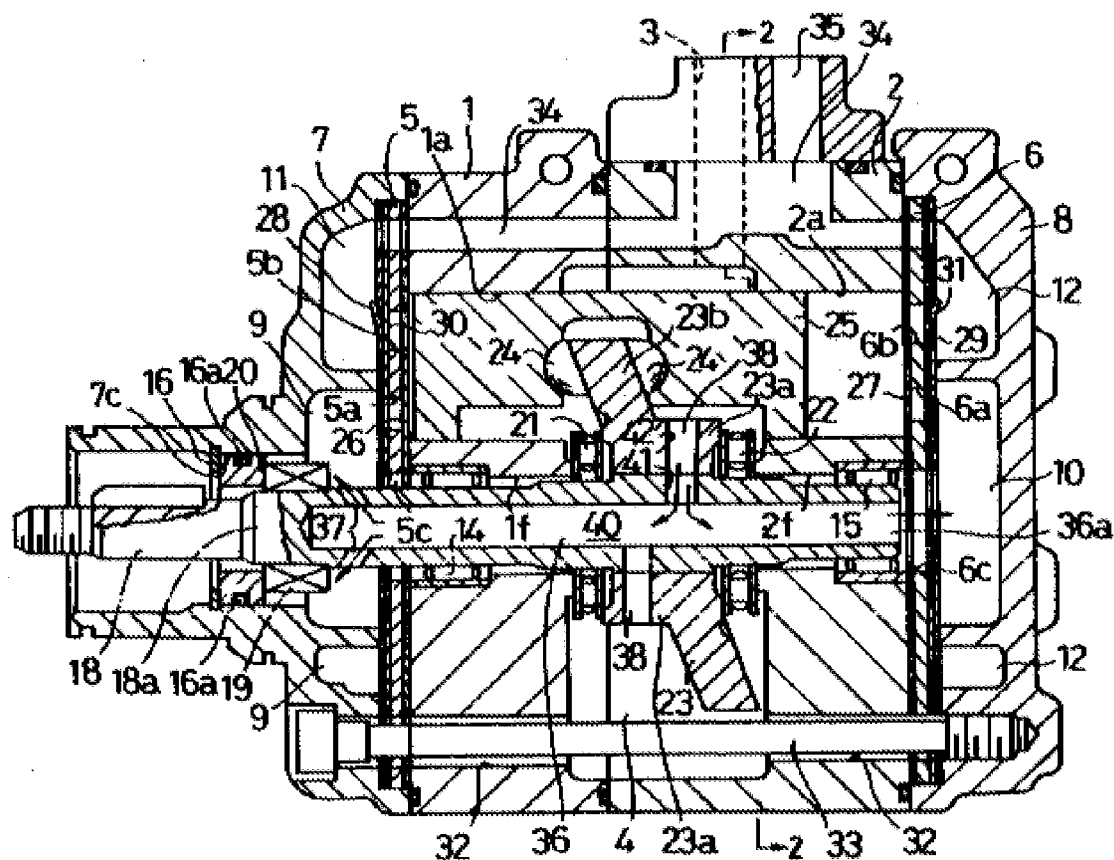


Fig. 2

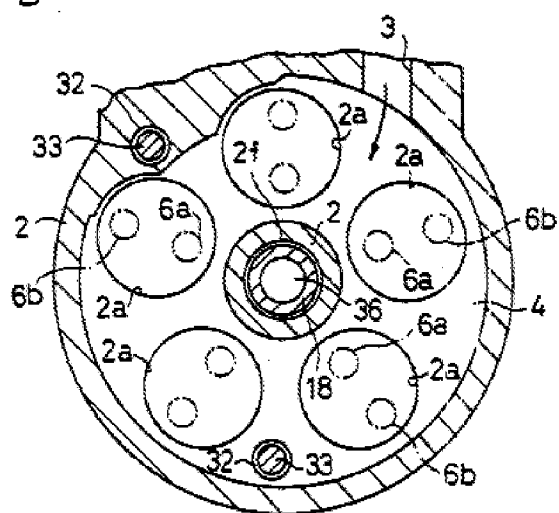
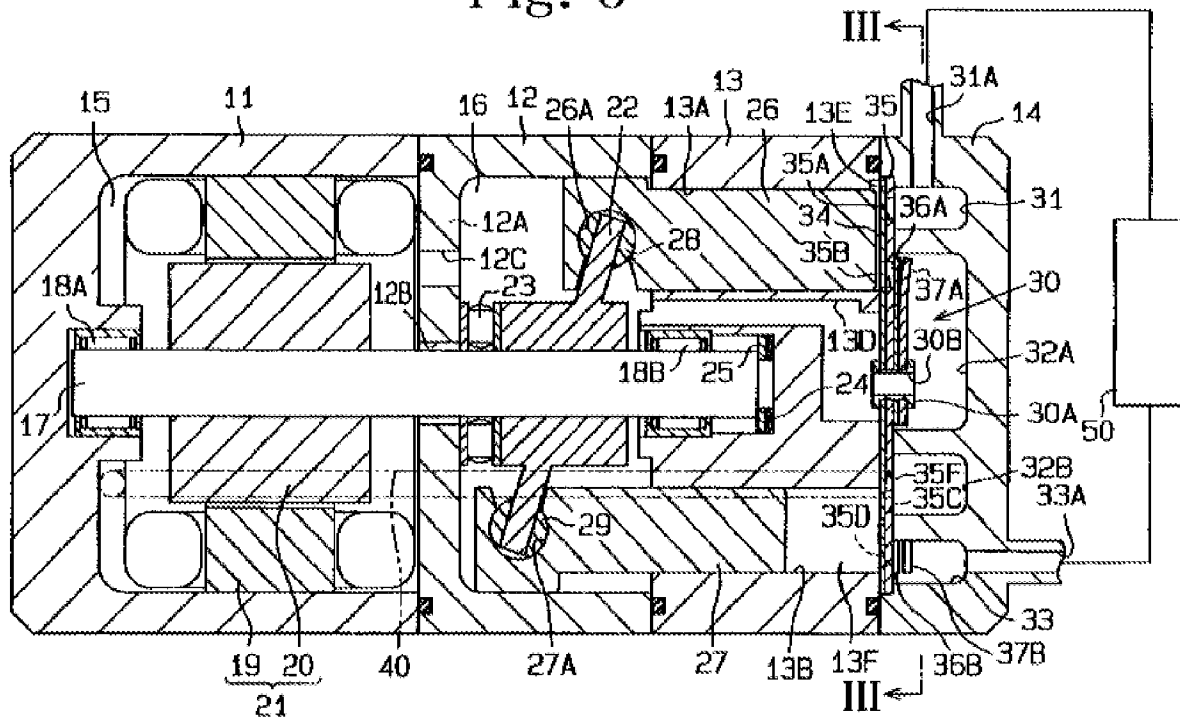


Fig. 5



12. In Re claim 12, with reference to figures 1 and 2, Fujii et al discloses a compressor installed to one side of driving means (not depicted) that provide drive to shaft (18), the compressor unit comprises:

- a front housing (7) having discharge chamber (11)
- a rear housing (8) having a suction chamber (10) inherently partitioned from a discharge chamber (12), with a discharge port (35) formed at one side communicating through discharge passage (34) with the discharge chamber (12)
- a cylinder block (1), (2) coupled between the front housing (7) and the rear housing (8) and having a plurality of bores (1a), (2a) formed at both sides (1a) and (2a) of the swash plate chamber that is inherently formed within cylinder blocks (1), (2) and a refrigeration suction port (3) formed at one side thereof

Art Unit: 3745

- a swash plate (23) placed in the swash plate chamber and coupled with drive shaft (18), and a plurality of double head pistons (25) (Column 3, Line 25) for reciprocating within the bores (1a), (2a) in cooperation with the rotation of the swash plate (23)
- feeding means (38), (40), and (36a) for feeding refrigerant from the swash plate chamber partially into the suction chamber of the rear housing (10). With regards to “..means for feeding refrigerant..”, this limitation meets the three prong test per MPEP 2181 and thereby invokes 35 USC 112 6th paragraph. The means for feeding refrigerant has been disclosed in Figure 5 of applicant's drawings.

13. However, Fujii et al does not disclose:

- a motor unit comprising an electric motor installed in an inside motor room for rotating a drive shaft
- feeding means for feeding the refrigerant from the swash plate chamber partially into the motor room
- the front housing further has suction passages for communicating the motor room to the bores to allow the suction of refrigerant supplied to the motor room into the bores of the cylinder block

14. Nevertheless, with reference to Figure 5, Yokomachi et al discloses a motor driven compressor unit comprising:

- a motor unit (11) comprising an electric motor (21) installed in an inside motor room (15) for rotating a drive shaft (17)

Art Unit: 3745

- a compressor unit installed to the right of motor unit (11) as depicted, the compressor unit comprising:
 - a front housing (12)
 - a rear housing (14) having chamber (32B) inherently partitioned from a discharge chamber (33), with a discharge port (33A) formed at one side communicating with the discharge chamber (33)
 - a cylinder block (13) coupled between the front housing (12) and the rear housing (14) and having a plurality of bores (13A), (13B) formed at both sides (13A) and (13B) of the swash plate chamber (16) and a refrigeration suction port (31A) formed at one side thereof
 - a swash plate (22) placed in the swash plate chamber (16) and coupled with drive shaft (17), and a plurality of double head pistons (26), (27) for reciprocating within the bores (13A), (13B) in cooperation with the rotation of the swash plate (22)
 - feeding means comprising communication bore (12C) and central bore (12B) for feeding refrigerant from the swash plate chamber (16) partially into the motor room (15). With regards to “..means for feeding refrigerant..”, this limitation meets the three prong test per MPEP 2181 and thereby invokes 35 USC 112 6th paragraph. The means for feeding refrigerant has been disclosed in Figure 5 of applicant's drawings.
 - the front housing (12) further has a suction passage (40) for communicating the motor room (15) to the bore (13B) through intermediate pressure chamber (32B) to allow the suction of refrigerant supplied to the motor room (15) into the bore (13B). In addition, there is another suction passage communicating the bore

Art Unit: 3745

(13A) to the motor room (15) originating at the bore (13A), through chamber (30), hole (30B), communication bore (13D) and communication bore (12C) in the front housing (12) leading into the motor room (15).

15. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the compressor taught by Fujii et al to include a motor unit in a motor room on one side, feeding means for feeding the refrigerant from the swash plate chamber into the motor room and suction passages communicating the motor room to the bores as taught by Yokomachi et al for the purpose of producing a compact, reduced weight swash plate compressor which can efficiently cool down a motor chamber as stated by Yokomachi et al in the abstract.

16. In Re claim 13, Yokomachi et al discloses the feeding means to include first low pressure passages (12B),(12C) communicating the swash plate chamber (16) to the motor room (15) and a second low pressure passage (30B),(13D) for communicating the swash plate chamber (16) to the suction chamber (30). Fujii et al also discloses a second low pressure passage (38), (40), and (36a) for feeding refrigerant from the swash plate chamber partially into the suction chamber of the rear housing (10).

17. In Re claim 14, Yokomachi et al discloses the first low pressure passages (12B),(12C) are formed through the front housing and inherently through the front side of cylinder block chamber (13). Yokomachi et al also discloses a second low pressure passage (30B),(13D) inherently formed through the rear side of cylinder block chamber

Art Unit: 3745

(13). Fujii et al also discloses a second low pressure passage (38), (40), and (36a) formed through the rear cylinder block chamber (2).

18. In Re claim 15, Fujii et al discloses a passage (40) formed in the drive shaft (18), and inlet passages (38) communicating the swash plate chamber to the passage (40), to allow the flow of refrigerant from the swash plate chamber towards the passage (40).

19. In Re claims 16 and 17, Fujii et al discloses that the inlet passages (38), (40) are formed inside the drive shaft (18) and the hub (23a) and, the inlet passage (42) in the hub (23a) is coupled with the inlet passage (41) in the drive shaft (18).

20. In Re claim 18, Fujii et al discloses the discharge chamber (11) of the front housing (7) is communicated with the discharge chamber (12) of the rear housing (8) via a communication passageway (34) formed through the cylinder blocks (1) and (2).

21. In Re claim 19, the front housing (7) further has a suction chamber (9) inherently partitioned from the discharge chamber (11).

22. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al (US Patent 5183394 A) and Yokomachi et al (US PG Pub 20010007635 A1) as applied to claim 12 and further in view of Saito et al (US PG Pub 20020039532 A1).

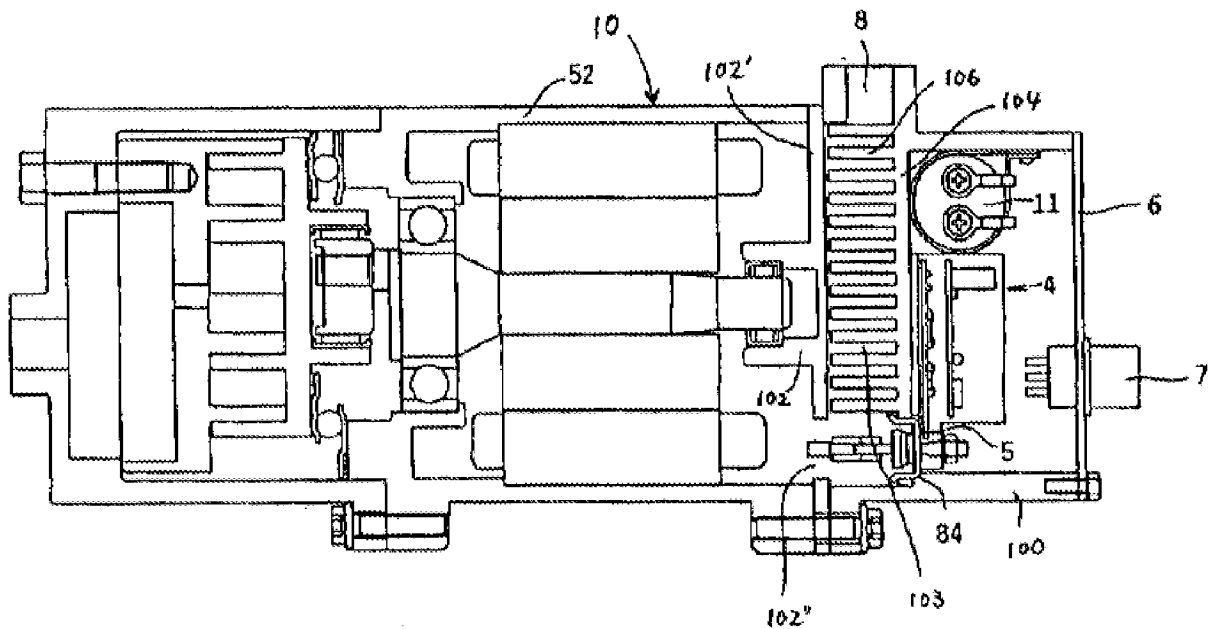


Fig. 4

23. In Re claim 20, Fujii et al modified by Yokomachi et al as applied to claim 12 discloses the claimed limitations except for the suction muffler chamber formed at one side of the cylinder block, the suction muffler chamber is mounted with motor-controlling means on an upstream section where refrigerant is introduced.

24. However, with reference to Figure 4 depicted above, Saito et al discloses a suction muffler chamber (100) formed at one side of cylinder block (52), the suction muffler chamber (100) is mounted with motor controlling means (4) on an upstream section (103) where refrigerant is introduced through inlet port (8).

25. It would have been obvious to a person having ordinary skill in the art at the time of the invention to further modify the compressor unit disclosed by Fujii et al modified by Yokomachi et al at the inlet to include a suction muffler chamber and motor controlling

means as taught by Saito et al for the purpose of reducing the cost of manufacturing because additional cooling means to dissipate the heat generated by motor controlling means is no longer necessary as stated by Saito et al in the section "Description of related art" in Paragraph [0004].

26. In Re claim 21, Saito et al discloses the motor controlling means (4) comprises an inverter (2) as mentioned in Paragraph [0033].

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Degawa (US Patent 4,135,862 A) discloses another double acting piston cylinder compressor. Murakami et al (US PG Pub 20010014289 A1), (US Patent 6,632,074 B2) and Nakane et al (US Patent 6,609,897 B1) disclose other embodiments of a swash plate type compressor integrated with its driving motor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Nguyen can be reached on (571) 272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dnyanesh Kasture
Examiner
Art Unit 4147

NHN/dgk

/Ninh H. Nguyen/

Primary Examiner, Art Unit 3745